



CATALOG No. 3011-B

# IMPERIAL

## TUBE WORKING TOOLS

- **CUTTING**  
Tube Cutters  
Sawing Vises
- **FLARING**  
45° Flares  
37° Flares  
Double Flares
- **BENDING**  
Lever Type  
Gear Type  
Spring Type
- **REAMING**
- **SWEDGING**
- **PINCH-OFF**
- **REFACING**



*The* **IMPERIAL BRASS**  
MANUFACTURING COMPANY  
1200 W. Harrison St.  
Chicago 7, Illinois

**TOOL & EQUIPMENT DISTRIBUTORS, INC.**

751 CONNECTICUT BLVD.  
EAST HARTFORD, CONNECTICUT

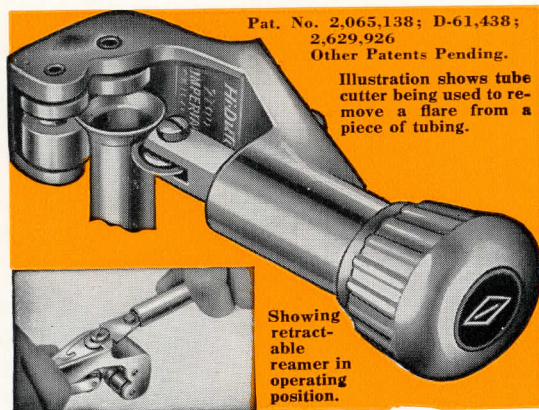
Phone: JA-86521





# IMPERIAL *Hi-Duty*® TUBE CUTTERS

With Free Wheeling Ball Bearing Action



Pat. No. 2,065,138; D-61,438;  
2,629,926  
Other Patents Pending.

Illustration shows tube  
cutter being used to re-  
move a flare from a  
piece of tubing.

Showing  
retract-  
able  
reamer in  
operating  
position.

Never before has there been a tube cutter that makes it so easy to cut tubing quickly and accurately. This Imperial Cutter embodies many exclusive advantages.

Cuts hard or soft copper, brass, aluminum, thin-wall steel, block tin and lead tubing. Makes a clean, right angle cut. Leaves no burrs or chips to clog the line; leaves tubing round, ready for flaring.

Ball thrust bearings make this the easiest operating of all tube cutters. Tubing rolls on two rollers, adding to ease of operation. Flare cut-off groove in rollers makes it possible to remove a cracked flare without wasting any tubing, often eliminating replacing tubing.

Has high strength, light weight, aluminum alloy body which is extremely easy to handle. Length of tool remains the same regardless of size of tubing being cut.

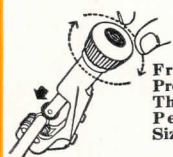
Reamer folds out of way when not in use. Locks securely in open or closed position.

**No. 274-F Hi-Duty Cutter for  $\frac{1}{8}$ " to 1" O.D. Tubing.**

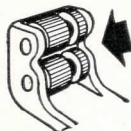
( $\frac{1}{8}$ " to  $\frac{3}{4}$ " nominal). Overall length  $4\frac{1}{2}$ ". Wt. 6 oz.

**No. 312-F Hi-Duty Cutter for  $\frac{1}{4}$ " to  $1\frac{3}{8}$ " O.D. Tubing.**

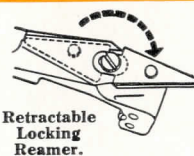
( $\frac{1}{8}$ " to  $1\frac{1}{4}$ " nominal). Overall length  $5\frac{1}{2}$ ". Wt. 7 oz.



Free Wheeling  
Provided by Ball  
Thrust Bearings.  
Permits Quick  
Size Adjustment.



Roller Type  
with Flare Cut-  
off Groove.



Retractable  
Locking  
Reamer.



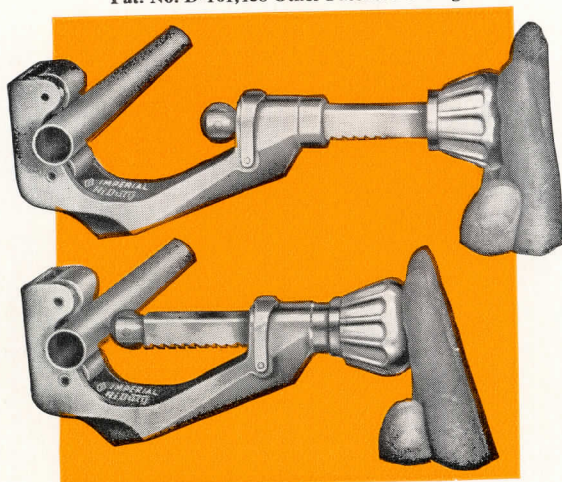
Enclosed Ball  
Bearing Feed  
Mechanism  
Insures Last-  
ing, Easy  
Operation.

## IMPERIAL *Hi-Duty*® Adjust-o-matic TUBE CUTTER

For Larger Sizes of Tubing

Quick Slide-to-Size Adjustment

Pat. No. D-161,438 Other Patents Pending



### INSTANT ADJUSTMENT TO TUBING SIZE

Pushing on handle slides cutting wheel to tubing size. Ratchet release permits cutter to be opened instantly to maximum size.

Makes a clean, right angle cut in hard or soft copper, brass, aluminum, thin-wall steel, block tin and lead tubing. Takes all sizes from  $\frac{3}{4}$ " to  $2\frac{1}{4}$ " O.D. ( $\frac{5}{8}$ " to 2" nominal).

Instant adjustment to tubing size. Just push on handle to slide cutting wheel down to tubing size. Cutting wheel is then fed in conventional manner by turning operating handle.

Pressing down release on ratchet mechanism permits cutter to be opened instantly to maximum size.

Has enclosed feed mechanism. Threads protected against damage and dirt, assuring lasting, easy operation.

Tube rolls on rollers for easy operation. Large fluted handle for secure grip.

Aluminum alloy body. High strength, light weight, easy to handle.

**No. 206-F Imperial Hi-Duty Adjust-o-matic Tube Cutter.**

For tubing from  $\frac{3}{4}$ " to  $2\frac{1}{4}$ " O.D. ( $\frac{5}{8}$ " to 2" nominal).

Overall length closed  $6\frac{3}{8}$ ". Weight 1 lb., 7 oz.





## IMPERIAL JUNIOR TUBE CUTTER

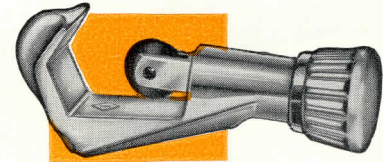
A smaller sized tube cutter of new, improved, streamlined design. Cuts hard or soft copper, brass, aluminum, thin-wall steel, block tin and lead tubing. Takes all sizes from  $\frac{1}{8}$ " to and including  $\frac{3}{4}$ " outside diameter tubing. Makes a quick, clean, right-angle cut without flattening the tube.

The small size—only  $3\frac{1}{2}$ " overall length—makes it a handy tool to carry. Can be used in hard-to-get-at places.

Enclosed feed mechanism protects threads against dirt and damage. Length of tool remains the same regardless of size of tubing being cut.

**No. 227-F Junior Tube Cutter for  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D. Tubing.**  
( $\frac{1}{8}$ " to  $\frac{3}{4}$ " nominal). Wt. 5 ozs.

Pat. No. D-161,438



### Extra Parts for Tube Cutters

**No. 32633 Cutting Wheel for 227-F, 274-F, and former 94-F, 104-F, 127-F, 174-F, and 212-F.**

**No. 60769 Cutting Wheel for 312-F.**

**No. 33045 Cutting Wheel for 206-F and former 204-F.**

**No. 26883 Screw for Cutting Wheel for 227-F, 274-F, 312-F and former 94-F, 104-F, 127-F, 174-F and 212-F.**

**No. 33046 Screw for Cutting Wheel for former 204-F.**

**No. 61936 Screw for Cutting Wheel for 206-F.**

**No. 60225 Reamer Blade for 274-F and 312-F.**

**No. 97-F Reamer Blade for former 94-F, 174-F and 212-F.**

**No. 60233 Screw for Reamer Blade for 274-F and 312-F.**

**No. 60232 Spring Washer for Reamer Blade for 274-F and 312-F.**

**No. 31296 Screw for Reamer Blade for former 94-F, 174-F and 212-F.**

## IMPERIAL SAWING VISE

### Quick Slide-to-Size Clamping

#### For $3/16$ " to $1\frac{1}{2}$ " O.D. Tubing

Easily and quickly clamps tubing and holds it securely for making perfect right angle cuts with a standard hacksaw. For use with all kinds of metal tubing, hard or soft temper. Excellent for cutting heavy wall tubing. Also recommended for cutting stainless steel and titanium tubing, as it does not work harden the tubing.

Quick clamp adjustment. Clamping screw has spiral ratchet mechanism. Pushing on screw slides clamping block down to tubing. Only one turn of thumb screw then clamps tubing securely without marring, crushing or flattening. Ratchet release for spiral ratchet mechanism allows clamp to be pulled up instantly to release tubing.

Vise is made of high tensile strength aluminum alloy, with working parts of steel. Has hardened steel guides for hacksaw. No loose parts to be lost or mislaid. Can be clamped in a vise or fastened to bench.

**No. 384-F Imperial Sawing Vise for  $3/16$ " to  $1\frac{1}{2}$ " O.D. Tubing.**  
(Nominal Sizes  $\frac{1}{8}$ " to  $1\frac{1}{4}$ "). Weight  $2\frac{1}{2}$  lbs. Size 5" long x  $3\frac{1}{8}$ " wide x  $5\frac{1}{8}$ " high (to top of screw with clamp closed).

Patents Applied For

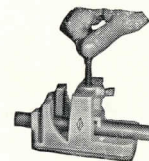
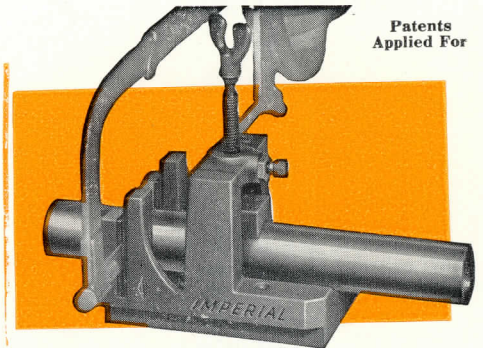


Fig. 1

Push down clamping screw until clamping block contacts tubing (Fig. 1).

To release tubing after making cut, press ratchet release and pull up clamp screw (Fig. 2).

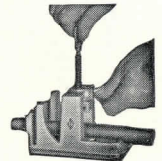
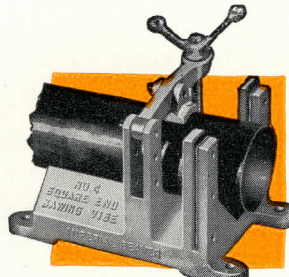


Fig. 2

## IMPERIAL-BEAVER SAWING VISES



No. 184-F



No. 185-F

Especially serviceable for cutting the larger sizes of pipe and tubing. Vise holds pipe or tubing firmly and provides a guide for a standard hacksaw, thus making possible perfect right angle cuts. Holding pressure is so applied that tubing will not be crushed, marred or flattened. Can be used for hard or soft tubing.

Vises have removable steel inserts. Combined range of the two vises is from  $\frac{3}{16}$ " to 4" O.D.

**No. 184-F Sawing Vise for  $3/16$ " to  $2\frac{3}{8}$ " O.D. Tubing.** ( $\frac{1}{8}$ " to 2" nominal). Wt.  $10\frac{1}{2}$  lbs.

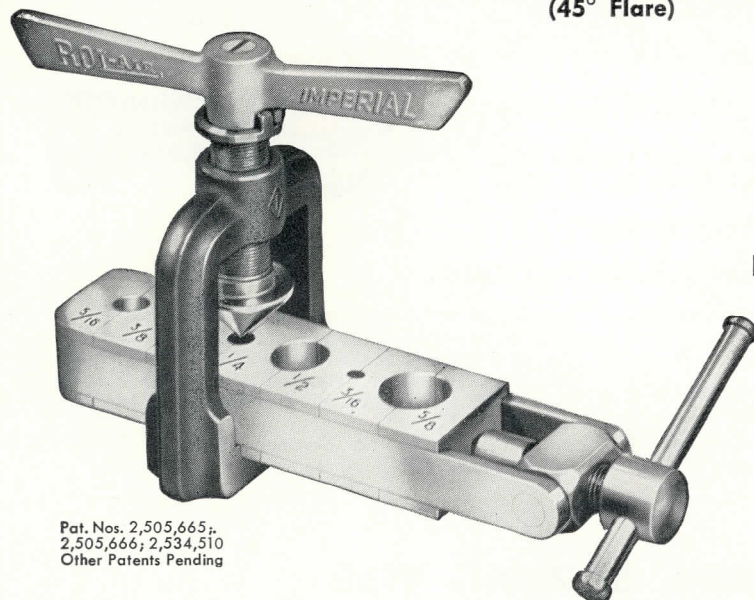
**No. 185-F Sawing Vise for  $1\frac{1}{2}$ " to 4" O.D. Tubing.** ( $1\frac{1}{4}$ " to  $3\frac{1}{2}$ " nominal). Wt. 22 lbs.





## IMPERIAL No. 500-F *ROL-AIR*\* FLARING TOOL

(45° Flare)



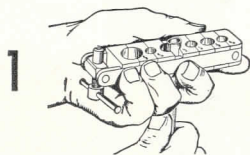
Pat. Nos. 2,505,665;  
2,505,666; 2,534,510  
Other Patents Pending

*with Automatic  
Burnishing Action*

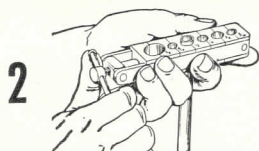
ROLLS FLARES IN THE AIR



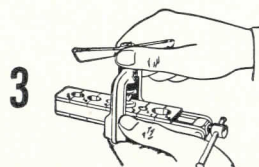
### NOTE FAST, EASY OPERATION



1  
Insert tubing between segments of proper size die block so that it extends approximately 1/4" above face of block.



2  
Swing cam action clamp into position against end of die and tighten firmly. (New rod handle makes this easier.)



3  
Slide yoke over end of die holder and turn feed screw 3 or 4 revolutions after cone contacts tubing. This makes a perfect flare. When backing off the flaring cone, a special mechanism causes automatic burnishing of flare.

Rolls 45° S.A.E. flares in the air and then automatically burnishes them to produce the finest flares we have ever seen. Handles 6 popular sizes of soft copper, aluminum and brass tubing—3/16", 1/4", 5/16", 3/8", 1/2", 5/8" O.D.

### HAS FACETED FLARING CONE

Super-smooth, multi-faceted flaring cone with tool chrome finish, rolls out the 45° flare above die block.

### AUTOMATICALLY BURNISHES FLARES

When backing off cone after flare is made, a lost motion mechanism automatically disengages feed during first revolution, causing faceted cone to perform a burnishing action and to give flare a highly polished finish.

### MAKES STRONGER FLARES

Because flare is not formed against die block, original wall thickness is maintained at base of flare and there is no chance of "washing out" flare. Stronger flares, which stand up far longer under vibration, are assured.

### DOES NOT SCORE THE TUBING

Heat treated, smooth surface dies clamp the tubing without scoring it. A single convenient screw at the end of die holder, with rod handle for leverage, provides easy tightening. Tool has forged steel yoke. Dies can also be used for rerounding and sizing tubing.

**No. 500-F IMPERIAL ROL-AIR FLARING TOOL.** Flares and burnishes 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. Tubing. (1/8", 1/4", 3/8" and 1/2" nominal). Net wt. 1 1/2 lbs.

No. 61637 Yoke Assembly. No. 61639 Cone Assembly. No. 61851 Bar Assembly.

\*Trade Mark





## IMPERIAL FLARING TOOLS with SLIP-ON YOKE (45° Flare)

Pat. Nos. 1,724,697, 2,072,359, 2,278,932  
Pat. Canada 1953, Other Patents Pending

The quick slip-on yoke of this flaring tool provides exceptional ease and speed of operation. Tool gives the proper 45° flare to soft copper, brass or aluminum tubing to make up tight S.A.E. flare joints.

*Features which make this tool outstanding are:*

- ★ Yoke slips straight down over top of bar (Fig. 1), then locks into position with a slight turn (Fig. 2).
- ★ Yoke can be removed after flaring without backing up compressor screw more than a fraction of a turn.
- ★ Bottom construction of yoke permits flares to be made where there is little space between nut and the end of tubing—such as on a short bend or on finned tubing in refrigeration work.
- ★ Square end on compressor screw for  $\frac{1}{4}$ " ratchet wrench. (Handle is removable.)
- ★ Positive grip of tubing in bar by means of special non-slip feature.

Yokes are made of forged steel. Furnished either with cone which rotates with the screw or with swivel cone. The latter type remains stationary while screw is turned.

**No. 193-F**—Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ " and  $\frac{1}{2}$ " O.D. tubing. (Nominal sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ "). Wt.  $1\frac{1}{2}$  lbs.

**No. 193-FS**—Same as 193-F, except with Swivel Cone.

**No. 195-F**—Flares  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. tubing. (Nominal sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ "). Wt.  $1\frac{1}{2}$  lbs.

**No. 195-FS**—Same as 195-F, except with Swivel Cone.

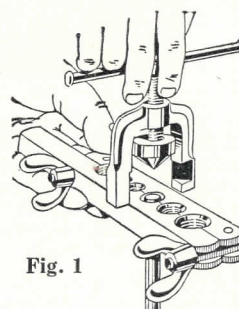
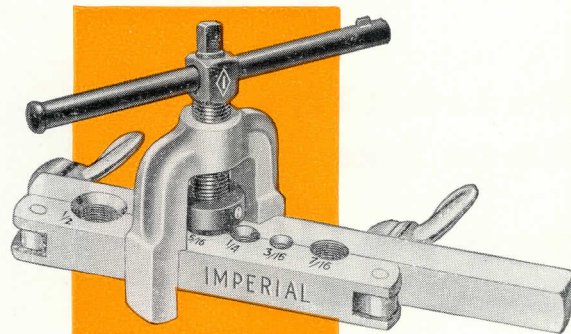


Fig. 1

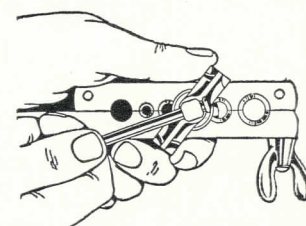


Fig. 2

## IMPERIAL FLARING TOOLS (45° Flare)

Pat. Nos. 1,724,697 2,072,359 Other Patents Pending

Flares soft copper, brass or aluminum tubing to make up S.A.E. 45° flare joints without cracking or splitting.

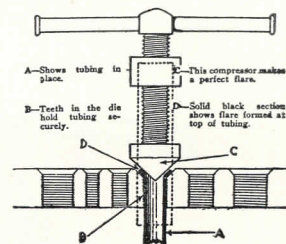
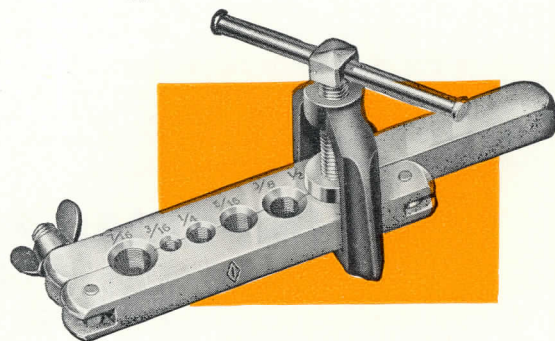
With the S.A.E. flared coupling a proper flare of the tubing is necessary to prevent leakage. These tools quickly give the proper flare and taper to tubing from  $\frac{3}{16}$ " to and including  $\frac{5}{8}$ " outside diameter. Tubing can be clamped, flared and removed in less than 30 seconds. Positive grip of tubing in bar by means of special non-slip feature.

Yokes are made of steel forgings. No. 95-F type is furnished either with cone which rotates with the screw or with swivel cone. The latter remains stationary while screw is turned.

**No. 93-F**—Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ " and  $\frac{1}{2}$ " Outside Diameter Tubing. (Nominal sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ "). Wt. approx.  $1\frac{1}{2}$  lbs.

**No. 95-F**—Flares  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " Outside Diameter Tubing. (Nominal sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ "). Wt. approx.  $1\frac{1}{2}$  lbs.

**No. 95-FS**—Same as above except with swivel cone. Wt. approx.  $1\frac{1}{2}$  lbs.



## REPLACEMENT PARTS FOR ABOVE FLARING TOOLS

Part No.	Description
No. 36273	Yoke assembly for 193-F and 195-F
No. 37369	Yoke assembly for 193-FS and 195-FS
No. 33465	Yoke assembly for 93-F and 95-F
No. 38379	Yoke assembly for 95-FS and former 93-FS
No. 36277	Bar assembly for 193-F and 193-FS
No. 36279	Bar assembly for 195-F and 195-FS
No. 30077	Bar assembly for 93-F and former 93-FS
No. 30231	Bar assembly for 95-F and 95-FS
No. 38584	Wing Nut

Part No.	Description
No. 25384	Compressor Cone for 193-F, 195-F, 93-F, 95-F
No. 32532	Compressor Cone for 95-FS, 193-FS, 195-FS, 295-FS and former 93-FS
No. 30009	Rivet for 93-F, 95-F, 95-FS, 193-F, 193-FS, 195-F and 195-FS
No. 36849	Bolt for open end of bar (6-sided)—93-F, 95-F, 95-FS, 193-F, 193-FS, 195-F and 195-FS.
No. 36850	Bolt for pivot end of bar (4-sided)—93-F, 95-F, 95-FS, 193-F, 193-FS, 195-F and 195-FS.



**IMPERIAL WIDE-RANGE FLARING TOOL**

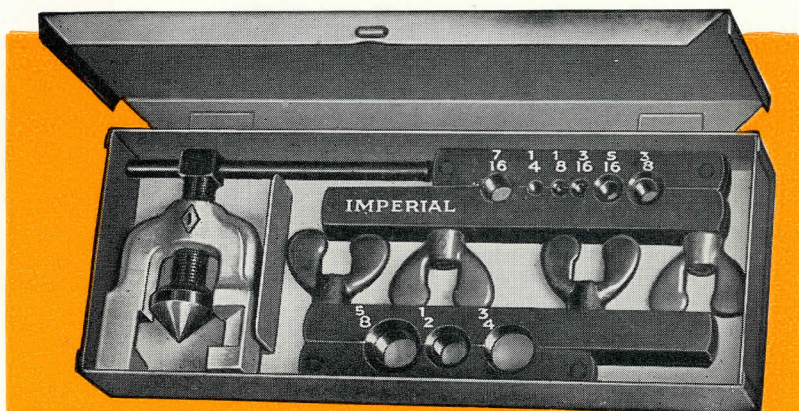
(45° Flare)

**For All Sizes of Tubing from 1/8" to 3/4" O.D.**

**Has Latest Type  
Slip-on Yoke**

**Flares 9 Different  
Sizes of Tubing**

Pat. Nos. 1,724,697; 2,072,359; 2,278,932  
Pat. Canada 1953



With this one flaring tool you can flare 9 different sizes of soft copper, brass or aluminum tubing. Tool consists of two flaring bars and one yoke. One bar flares 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" O.D. sizes. Other bar flares 1/2", 5/8" and 3/4" O.D. sizes. This eliminates the need for having several tools to cover a complete size range. Tool is small, compact and easy to work with.

Yoke is made of forged steel, is self-centering and has latest type slip-on feature. Inside edges of yoke are slotted so that once in position a slight turn holds it in place. Has swivel cone which makes operation easier.

Positive grip of tubing in bar by means of special non-slip feature.

**No. 375-FS—For 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" O.D. tubing.** (1/8", 1/4", 3/8", 1/2", 5/8" nominal). Complete in metal kit. Wt. approx. 4 3/4 lbs.

**EXTRA PARTS**

**No. 38766—Flaring Bar for 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" O.D. tubing.**

**No. 38767—Flaring Bar for 1/2", 5/8" and 3/4" O.D. tubing.**

**No. 38769—Yoke Assembly for No. 375-FS**

**No. 32640—Compressor Cone for 375-FS.**

**No. 38584—Wing Nut for No. 375-FS.**

**No. 36849—Bolt for No. 375-FS.**

**No. 36850—Bolt for No. 375-FS.**

**EXTRA PARTS FOR FORMER No. 175-F**

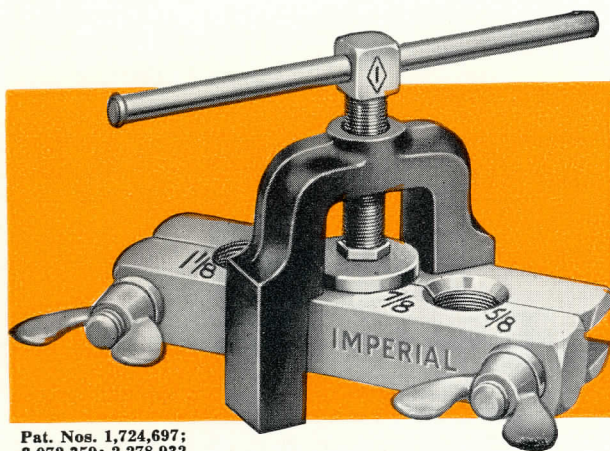
**No. 32638—Yoke Assembly.**

**No. 32640—Compressor Cone.**

**No. 38584—Wing Nut.**

**IMPERIAL FLARING TOOLS**

(45° Flare)

**For Larger Sizes of Tubing**

Pat. Nos. 1,724,697;  
2,072,359; 2,278,932  
Pat. Canada 1953

Flaring larger sizes of tubing for S.A.E. flared joints is made extremely simple by these heavy-duty flaring tools. Ideal for maintenance and plumbing work, large tubing jobs on diesels and other applications where larger sizes of tubing are involved.

Two sizes available. No. 203-FS flares 5/8", 7/8" and 1 1/8" O.D. Tubing; No. 103-FS flares 3/4", 7/8" and 1" O.D.

Tools have latest type quick slip-on yoke which can be slipped over the bar without twisting or turning. Inside edges of yoke are slotted so that once in position, a slight turn holds it in place.

Wing nuts are equipped with new Imperial swivel cups to minimize friction and give easier, more secure tightening. Positive grip of tubing in bar by means of special non-slip feature.

Yoke has swivel cone which remains stationary when screw is turned—an important aid to easier operation when working with large sizes of tubing.

**No. 203-FS—Flares 5/8", 7/8" and 1 1/8" O.D. Tubing.** (Nominal sizes 1/2", 3/4" and 1"). Wt. 3 3/4 lbs.

**No. 103-FS—Flares 3/4", 7/8" and 1" O.D. Tubing.** (Nominal sizes 5/8" and 3/4"). Wt. 3 3/4 lbs.

**Extra Parts for No. 203-FS and No. 103-FS**

**No. 38903—Yoke Assembly for 203-FS and 103-FS.**  
**No. 38904—Compressor Cone only for 203-FS and 103-FS.**

**No. 60515—Bar Assembly for 203-FS.**  
**No. 38905—Bar Assembly for 103-FS.**  
**No. 38588—Wing Nut for 203-FS and 103-FS.**





# IMPERIAL TUBING TOOLS

THE IMPERIAL BRASS MFG. CO.

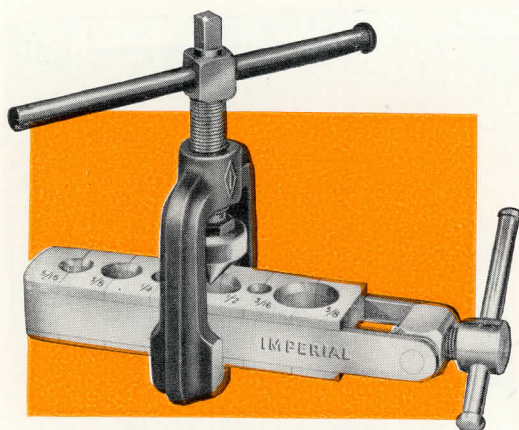
CHICAGO 7, ILLINOIS

## FLARING (45°)

### SWAGING

## IMPERIAL IMPROVED *Hi-Duty*® FLARING TOOL

(45° Flare)



**Speedy, Single Lever Clamping**  
**Flares 6 Sizes of Tubing**  
**More Compact—Easier to Use**

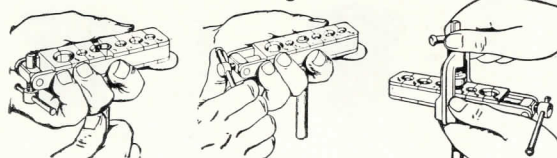
Pat. Nos. 2,072,359; 2,505,665; 2,505,666; 2,534,510  
Other Patents Pending

This tool makes precision 45° S.A.E. flares faster and more easily. Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. soft copper, brass and aluminum tubing.

In place of the usual bar, this tool has a new die holder with sliding dies for clamping the tubing. Only one screw at the end to tighten. Special non-slip feature assures against slippage of tubing in bar. Dies can also be used for rerounding and sizing tubing.

### Note Fast, Simple Operation

1. Tubing is inserted in proper opening of die block.
2. Cam action clamp is swung into position against end die, screw tightened.
3. Yoke is slipped over end of die block and tubing is flared.



**No. 300-F Hi-Duty Flaring Tool. Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. Tubing. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " nominal). Net. wt. approx. 1  $\frac{3}{8}$  lbs.**

### Extra Parts

- No. 39859—Yoke Assembly.
- No. 32532—Compressor Cone.
- No. 61893—Die Holder Assembly.

## IMPERIAL FLARING AND SWAGING TOOL

(45° Flare)

Pat. Nos. 1,724,697; 2,072,359; 2,278,932; 2,493,127  
Other Patents Pending

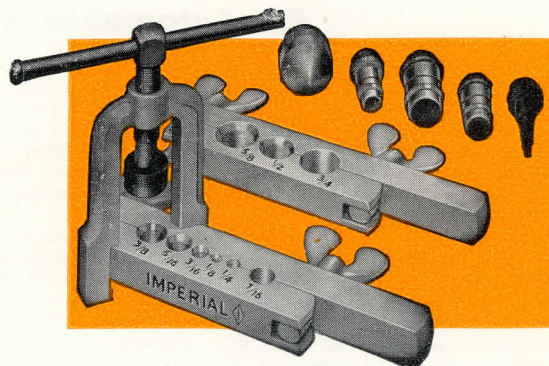
An improved tool that will either flare or swage soft copper, brass or aluminum tubing by changing a few simple adapters. Flares sizes of  $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. Swages sizes of  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " nominal).

Yoke is made of forged steel, is self-centering and has latest type slip-on feature. Inside edges of yoke are slotted so that once in position a slight turn holds it in place. Parts include two bars to cover a wide range of sizes, yoke, adapters for swaging, and spreader cone for flaring. Swaging adapters and spreader cone work on a swivel, making operation exceptionally easy.

**No. 275-FS—Imperial Flaring and Swaging Tool, complete with flaring cone and 4 swage adapters.**  
Wt. approx. 3  $\frac{1}{2}$  lbs.

**No. 276-FS—Tool and Flaring Cone only.**  
Wt. approx. 3  $\frac{1}{4}$  lbs.

**No. 278-FS—Individual adapters.**  
Specify size. The small adapter swages  $\frac{3}{16}$ ",  $\frac{1}{4}$ ", and  $\frac{3}{8}$ " O.D. Tubing. One adapter for each other size. Wt. approx.  $\frac{3}{4}$  oz.)



### EXTRA PARTS

- No. 38593—Yoke Assembly for 275-FS and 276-FS. (Does not include compressor cone or adapters).
- No. 38600—Compressor cone only for 275-FS and 276-FS.
- No. 38766—Bar for  $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " O.D.
- No. 38767—Bar for  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing.
- No. 38584—Wing Nut.





# IMPERIAL Multi-Size 45° DOUBLE-FLARING TOOL

**For Soft Steel,  
Copper and  
Aluminum  
Tubing**

*Especially Recommended  
for  
**BUNDY and G**  
or other brazed  
or welded steel tubing*

Provides a simplified method of making 45° double flares on  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. thin-wall soft steel tubing (such as Bundy), having not over .035" wall. Can be used also for making single or double flares on soft copper or aluminum tubing.

The tendency of welded and brazed steel tubing to crack when flared with the ordinary single-flaring tool is overcome by this tool because it folds back end of tube to make a flare with double thick, double strength walls. It can be used with seamless, butt-welded or lap-seam-brazed soft steel tubing having not over .035" wall. Tool first bells tubing, using adapter as shown in Fig. 1, then completes flare in same manner as a conventional flaring tool, Fig. 2.

The double flare also offers special advantages for copper and aluminum tubing when joints are to be reconnected frequently.

Tool is small—convenient to work with—can be used right on the job. Has forged steel yoke and swivel type flaring cone. Positive grip of tubing in bar by means of special non-slip feature. Net wt. approx. 3 lbs. Complete in metal kit.

**No. 93-FB—For  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. tubing.**

## Extra Parts

No.	No.
32638—Yoke Assembly	38384— $\frac{1}{2}$ " Adapter
38381—Bar Assembly	32640—Compressor Cone
38388— $\frac{3}{16}$ " Adapter	38584—Wing Nut
38387— $\frac{1}{4}$ " Adapter	36849—Bolt
38386— $\frac{5}{16}$ " Adapter	36850—Bolt
38385— $\frac{3}{8}$ " Adapter	



Pat. Nos. 1,724,697; 2,072,359; 2,370,089; Other Patents Pending

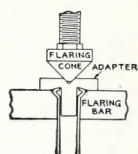


Fig. 1

Flaring cone is screwed down with proper size adapter in place in the tubing. This bells tubing as shown above.

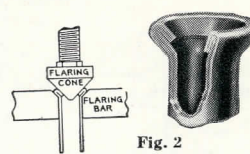


Fig. 2

Cone is then backed off slightly, adapter removed and cone screwed down just as on a conventional flaring tool. The result is an accurate 45° double flare.

## IMPERIAL DOUBLE-FLARING TOOL

**For Automobile Air Conditioning Systems**

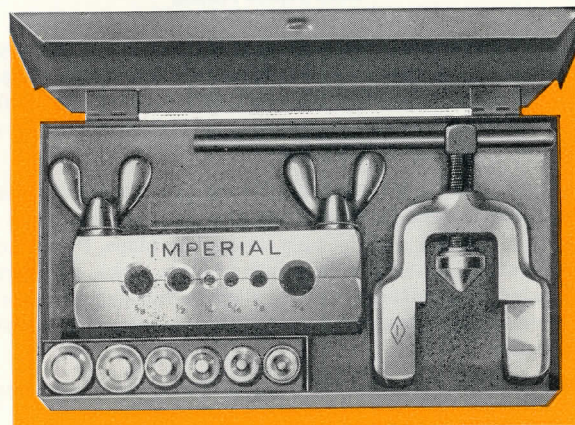
A new double-flaring tool especially designed to handle the tubing size range encountered in servicing automobile air conditioning systems. This tool folds over the end of soft copper, aluminum or steel tubing to make a flare with double-thick, double-strength walls. (See illustrations above showing forming of double flare.) Flares  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing having not over .035" wall.

It has been found that the double flare consistently assures tighter joints and greater vibration resistance on units that are put to severe service. The double flare also offers many advantages when joints are to be reconnected frequently. For example, it will withstand greater wrench torque without danger of "washing out" the flare. The Society of Automotive Engineers (S.A.E.) is considering standardization of the double flare for copper tubing lines on automobile air conditioning systems and refrigeration systems on trucks and trailers.

This Double-Flaring Tool is also recommended for use with thin wall, soft steel tubing (such as Bundy or GM) to insure against cracking or splitting of the tubing when flaring. The double flare is the only type of flare which has proved consistently successful for seamed steel tubing.

Yoke of tool is made of forged steel. Has swivel type flaring cone.

**No. 195-FB Imperial Double-Flaring Tool for  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing. Weight  $5\frac{1}{2}$  lbs.**



Pat. Nos. 1,724,697-2,072,359-2,370,089—Pat. Can. 1953, No. 490,030  
Other Patents Pending

## Extra Parts

No. 64250 Yoke Assembly	No. 64259 $\frac{1}{2}$ " Adapter
No. 64253 Bar Assembly	No. 64260 $\frac{5}{8}$ " Adapter
No. 64252 Compressor Cone	No. 64261 $\frac{3}{4}$ " Adapter
No. 64256 $\frac{1}{4}$ " Adapter	No. 28359 Wing Nut
No. 64257 $\frac{5}{16}$ " Adapter	No. 38586 Bolt
No. 64258 $\frac{3}{8}$ " Adapter	No. 28357 Bolt





## IMPERIAL 45° DOUBLE-FLARING TOOL

*For Making Precision Double Flares*

**Provides Positive, Accurate Control of Flare Size**

**Flares 5 Sizes of Tubing**

**Prevents Cracking or Splitting of Tubing**

Makes accurate 45° S.A.E. double lap flares on soft steel tubing (such as Bundy). Can also be used for making single or double flares on soft copper or aluminum tubing. Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. Tubing.

### Controlled Accuracy

Adapters for first forming operation serve as a positive gage for positioning tubing in die block. Adapters always line up properly with tubing. Thus the correct size flare, true with axis of tubing, is assured every time.

### Safe Flares for Seamed Tubing

A double lap flare is the only type which is consistently successful for seamed steel tubing. Tool prevents cracking or splitting of tubing because it folds over end to make flare with double-thick, double-strength walls. Can be used with seamless, butt-welded or lap-seam-brazed soft steel tubing having not over .040" wall. The double-flare also offers many advantages on copper or aluminum tubing when joints are to be reconnected frequently.

### Compact, Light Weight, Hand Operated

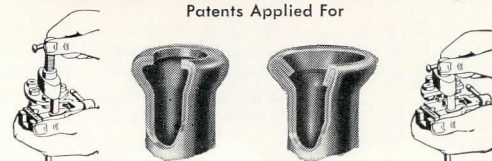
Tool is completely integrated and has no extra parts to be lost. Designed for easy hand operation on the job or in the shop. Adapters for various sizes revolve into position and make changing from one size to another simple and quick.

**No. 251-F Imperial Double-Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ", and  $\frac{1}{2}$ " O.D. tubing. Wt.  $2\frac{1}{2}$  lbs.**

Extra Parts  
No. 63587—Pair of Die Blocks.



Especially Recommended  
for  
**BUNDY and GM**  
or other brazed  
or welded steel tubing



First operation, using  
adapter, bells tubing as  
shown at left.

In second operation,  
flare is completed as  
shown at right.

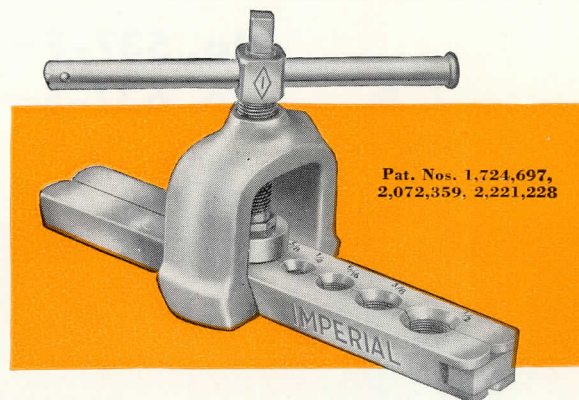
## IMPERIAL Self-Clamping FLARING TOOL

This easy operating flaring tool gives the proper 45° flare to soft copper, brass or aluminum tubing to make up tight S.A.E. flare joints without cracking or splitting the tubing.

An outstanding self-clamping feature of this tool makes it easier and faster to operate. To clamp tubing, it is only necessary to spread bar at its free end and place tubing in proper opening, close bar and slide forged steel yoke onto it. Bar is beveled on two outside edges, and yoke is tapered on each side to match. The tapered yoke automatically clamps bar to hold tubing in place—there are no nuts or other devices to be tightened.

Rod handle on yoke can be removed and a ratchet wrench used when working in close quarters. Tool has swivel type flaring cone which makes operation easier, especially when working with larger sizes of tubing.

**No. 295-FS—Self-Clamping Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. Tubing. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " nominal). Wt. approx.  $1\frac{1}{4}$  lbs.**



Pat. Nos. 1,724,697,  
2,072,359, 2,221,228

Extra Parts  
No. 37677 Yoke Assembly.  
No. 32532 Compressor Cone only.  
No. 61293 Bar only.

### JUST 3 SIMPLE STEPS TO MAKE A FLARE

1. Spread bar and insert tubing in proper opening.

2. Close bar and slide yoke onto hinged end of bar.

3. Center spreader cone over tubing and turn compressor screw down firmly. The result—A PERFECT 45° flare.

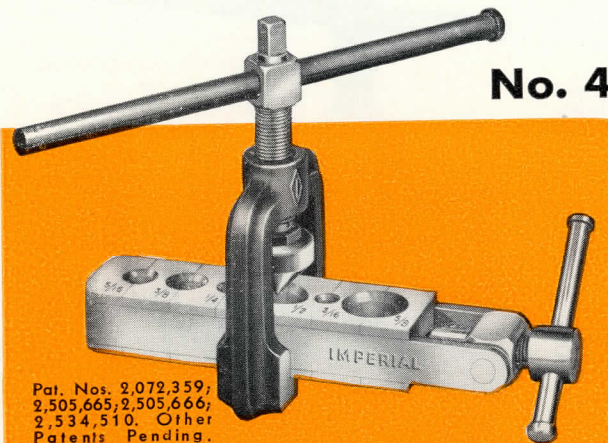






## IMPERIAL 37° FLARING TOOLS

For Flaring Soft Steel Tubing to J.I.C. Standards. Also for Making 37° Flares on Copper, Aluminum, and Fully Annealed Stainless Steel Tubing



Pat. Nos. 2,072,359;  
2,505,665; 2,505,666;  
2,534,510. Other  
Patents Pending.

### QUICK AND EASY TO OPERATE

1. Tubing is inserted in proper opening of die block.
2. Cam action clamp is swung into position against end die, screw tightened.
3. Yoke is slipped over end of die block and tubing is flared.



### No. 437-F—Flares 6 Sizes

3/16", 1/4", 5/16", 3/8", 1/2",  
5/8" O.D.

Makes 37° flares which conform to specifications set up by the Joint Industry Conference on Hydraulic Standards for Industrial Equipment.

**HANDLES WIDE RANGE OF SIZES.** One compact, light weight die assembly takes 6 sizes of tubing as specified above.

**EASY, SINGLE LEVER CLAMPING.** Tool has a new type die holder with heat treated, sliding dies for clamping tubing. A single lever at end of die holder provides easy tightening. Yoke of tool quickly slides over end of die holder into position over tubing to be flared, and an accurate flare can be made with a minimum of time and effort.

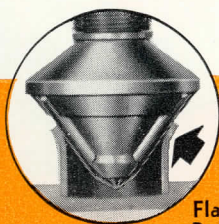
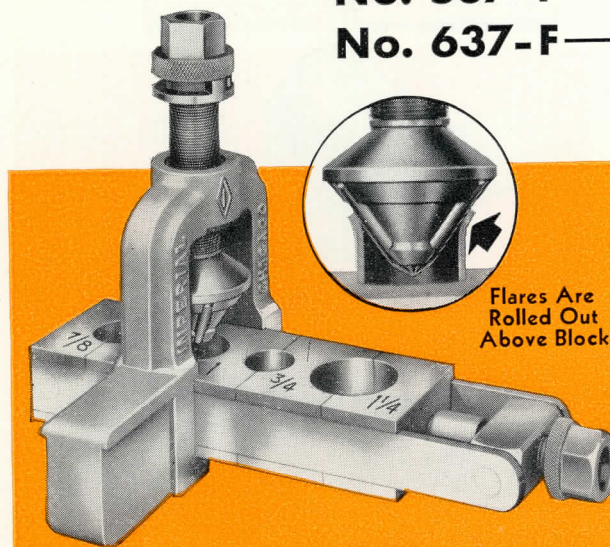
**No. 437-F IMPERIAL 37° HI-DUTY FLARING TOOL.** Flares 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. Tubing. Net wt. 1 5/8 lbs.

No. 61984 Die Holder Assembly.

No. 61982 Yoke Assembly.

### No. 537-F—Flares 3/4", 7/8", 1", 1 1/4" O.D.

### No. 637-F—Flares 1 1/2", 1 3/4", 2" O.D.



Flares Are  
Rolled Out  
Above Block

**ROLLER ACTION MAKES FLARING EASIER.** 37° Flares are rolled out in the air above die block by means of three rollers in spreader cone. These rollers reduce amount of torque required, an important advantage in flaring large sizes of tubing. Hexagon head on stem provides for easy wrench operation.

**AUTOMATICALLY BURNISHES FLARES.** When cone is backed off after flare is made, a lost motion mechanism automatically disengages feed during first revolution, causing three rollers to perform a burnishing action and give flare a smooth finish, assuring tighter joints.

**MAKES STRONGER FLARES.** Because flare is not formed against die block, original wall thickness is maintained at base of flare. Stronger flares which stand up far longer under vibration are assured.

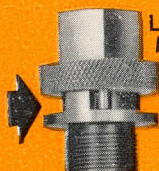
**DOES NOT SCORE THE TUBING.** Heat treated, smooth surface dies clamp tubing securely without scoring it. Clamping screw has hex head for wrench.

**No. 537-F** Flares and burnishes 3/4", 7/8", 1" and 1 1/4" O.D. Tubing. Net wt. 5 lbs.

**No. 637-F** Flares and burnishes 1 1/2", 1 3/4" and 2" O.D. Tubing. Net wt. 13 lbs.

No. 61960 Die Holder Assembly for 537-F.

No. 61948 Yoke Assembly for 537-F.



Lost Motion  
Mechanism

Patent Nos.  
2,505,665;  
2,505,666;  
2,534,510. Other  
Patents Pending.



Has Extension  
For Clamping  
in Vise

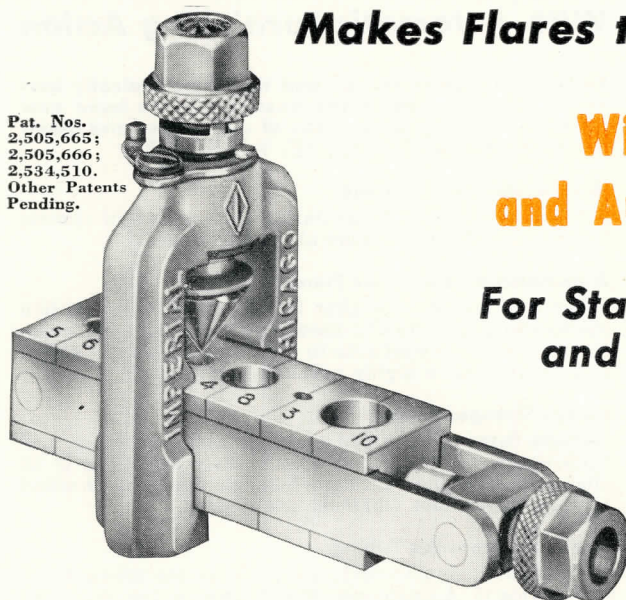




## IMPERIAL 37° FLARING TOOL

*Makes Flares to AN Standards*

Pat. Nos.  
2,505,665;  
2,505,666;  
2,534,510.  
Other Patents  
Pending.



**With Flare Control Gage  
and Automatic Burnishing Action**

**For Stainless Steel, Steel, Titanium  
and All Other Metal Tubing**

Rolls out precision 37° flares in conformity with aviation standard AND 10061. A compact, easy to operate tool suitable for use in the field or in the shop. Flares 6 sizes of high strength stainless steel (including MIL-T-6845), titanium and all other kinds of metal tubing— $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D.

### GAGE CONTROLS SIZE OF FLARES

A special gage incorporated in this tool controls insertion of tube so that it is clamped with the proper amount extending above the bar. Travel of compressor screw is also limited, thereby assuring a precision flare of the correct dimensions every time.

### ELIMINATES STRESS CONCENTRATION

Flares are rolled out in the air above die block, instead of being formed against block as with the ordinary flaring tool. When flares are formed in this manner, original wall thickness is maintained at base of flare, the incidence of stress concentration is reduced and most work hardening characteristics eliminated. This assures a far stronger flare. Roller action reduces torque required.

### AUTOMATICALLY BURNISHES FLARES

When backing off cone after flare is made, a lost motion mechanism automatically disengages feed during first revolution, causing 3 rollers in cone to perform a burnishing action and provide a smooth, true surface on the flare.

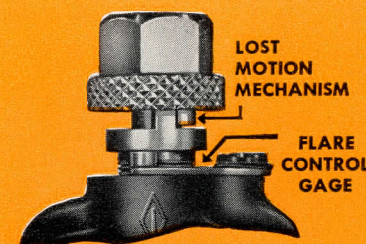
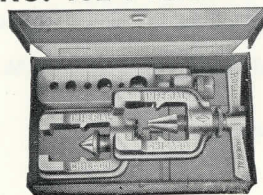
### DOES NOT SCORE THE TUBING

Heat treated, smooth surface dies clamp the tubing securely without scoring it, thus eliminating weakness at this point.

**NO. 400-F IMPERIAL 37° FLARING TOOL.** Flares and burnishes  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ", and  $\frac{5}{8}$ " O.D. tubing. Furnished in steel kit. Net wt. 2 lbs., 9 oz.

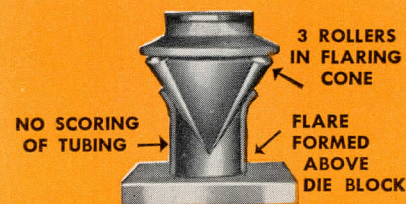
**NO. 402-F FLARING AND REAMING KIT.** (For best results,

No. 401-F Reamer should be used to remove all burrs before making a flare.) Contains No. 400-F Flaring Tool and No. 401-F Reaming Yoke. Reams  $\frac{1}{4}$ " to  $\frac{5}{8}$ " O.D. Tubing. Furnished in metal kit. Wt. 3 lbs., 2 oz.



**HOW GAGE CONTROLS SIZE  
OF FLARES**

The Gage is a wishbone shaped spacer pivoted to yoke. Correct leg of gage is pivoted into position and feed screw turned down until shoulder contacts gage. After slipping yoke over die block, tubing is inserted in proper opening, using flaring cone as a stop. Gage is then pivoted into neutral position and compressor screw turned down as far as it will go. Shoulder on screw acts as a positive stop. This gaging method assures flares of the correct dimensions every time.



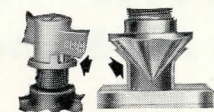
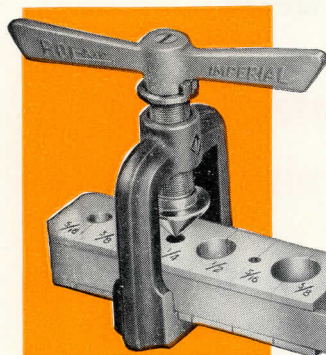
**MAKES STRONGER FLARES**

Because flares are formed by roller action above die block, the chances of stress concentration and work hardening are reduced, and original wall thickness is maintained at base of flare.





## IMPERIAL 37° *ROL-AIR*\* FLARING TOOL



(Left): Special Mechanism Causes Faceted Cone to Burnish Flare Automatically.

(Right): Faceted Flaring Cone Rolls Out Flare Above Die Block.

### With Automatic Burnishing Action

Rolls 37° flares in the air and then automatically burnishes them to produce the finest flares we have ever seen. Handles 6 popular sizes of soft copper and aluminum tubing— $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " O.D.

### Has Faceted Flaring Cone

Super-smooth, multi-faced flaring cone with tool chrome finish, rolls out the 37° flare above die block.

### Automatically Burnishes Flares

When backing off cone after flare is made, a lost motion mechanism automatically disengages feed during first revolution, causing faceted cone to perform a burnishing action and to give flare a highly polished finish.

### Makes Stronger Flares

Because flare is not formed against die block, original wall thickness is maintained at base of flare and there is no chance of "washing out" flare. Stronger flares, which stand up far longer under vibration, are assured.

### Does Not Score the Tubing

Heat treated, smooth surface dies clamp the tubing without scoring it. A single convenient screw at the end of die holder, with rod handle for leverage, provides easy tightening. Tool has forged steel yoke.

**No. 507-F Imperial Rol-Air Flaring Tool, Flares and burnishes  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. Tubing.**

Net wt.  $1\frac{1}{2}$  lbs.

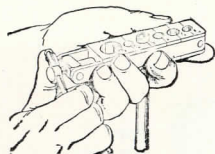
### Extra Parts

No. 64742 Yoke Assembly only.

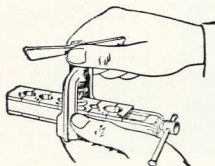
No. 64745 Cone Assembly.

No. 64743 Bar Assembly only.

### Note Fast, Easy Operation



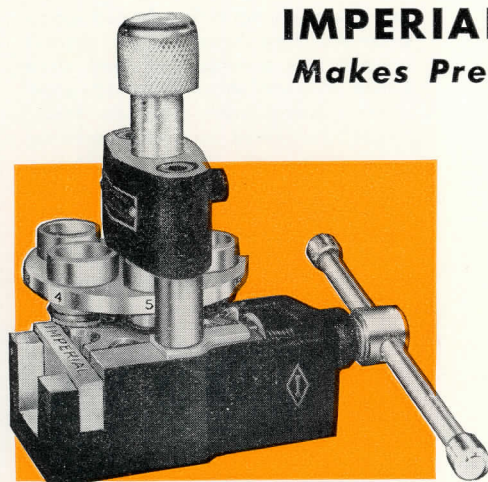
Tubing is clamped in die block so that it extends approximately  $\frac{1}{4}$ " above face of block.



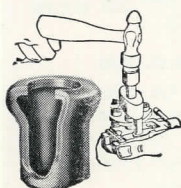
Yoke is slipped over end of die holder and feed screw turned 3 or 4 revolutions after cone contacts tubing. When backing off the flaring cone, a special mechanism causes automatic burnishing of flare.

## IMPERIAL 37° DOUBLE-FLARING TOOL

### Makes Precision Double Flares to AN Standards

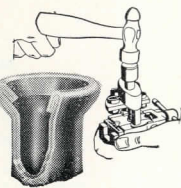


Patents Applied For



First operation, using adapter, bells tubing as shown at left.

In second operation, punch completes flare as shown at right.



Makes precision 37° double lap flares in conformity with aviation standard AND 10078. Can also be used for making single flares. Flares soft aluminum or soft copper tubing in sizes of  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ " and  $\frac{3}{8}$ " O.D., having not over .040" wall.

### Accuracy is Controlled

Adapters for first forming operation serve as a positive gage for positioning tubing in die block. Correct depth of tube insertion and tube alignment are automatic. Thus a flare of the correct size, accurately formed, is assured every time.

### Safer Flares for Many Uses

Tool folds over end of tubing to make flare with double-thick, double-strength walls. Double flares eliminate danger of weakening or washing out flares through over-tightening—make possible repeated, tight reconnections. This is exceptionally important in the case of aluminum.

### Hand Operated, Compact, Light Weight

Tool is completely integrated and has no extra parts to be lost. Adapters for various sizes of tubing revolve into position and make changing from one size to another simple and quick.

### Does Not Score The Tubing

Heat treated, smooth surface dies clamp tubing securely without scoring it.

**No. 255-F Imperial Double-Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ " and  $\frac{3}{8}$ " O.D. tubing Wt. 2 lbs.**

### Extra Parts

No. 63633—Pair of Die Blocks.

\* Trade Mark





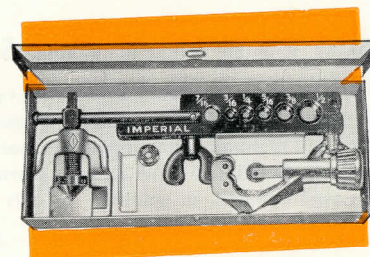
## IMPERIAL FLARING AND CUTTING TOOL KITS

(45° Flare)

These kits have the necessary tools for a quick cutting and flaring job on copper, aluminum and brass tubing.

All kits include No. 274-F Tube Cutter for tubing from  $\frac{1}{8}$ " to 1" O.D. and flaring tools as listed. No. 32633 Extra Cutting Wheel for Tube Cutter included. Packed in steel kit.

Cat. No. of Kit	No. of Flaring Tool Included	No. of Tube Cutter Included	Approx. Weight
225-F	93-F	274-F	3 lbs.
1225-F	193-F	274-F	3 lbs.
226-F	95-F	274-F	3 lbs.
1226-F	195-F	274-F	3 lbs.
123-F	300-F	274-F	3 lbs.
124-F	500-F	274-F	3 lbs.



### IMPERIAL WIDE-RANGE FLARING AND CUTTING TOOL KIT

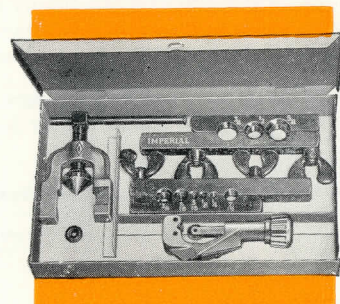
Handles an exceptionally wide range of tubing sizes. Cuts and flares copper, aluminum and brass tubing.

Kit includes:

No. 274-F Tube Cutter for tubing from  $\frac{1}{8}$ " to 1" O.D. and No. 32633 extra cutting wheel.

No. 375-FS Wide-Range Flaring Tool for tubing from  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D.

**No. 120-F Wide-Range Flaring and Cutting Tool Kit.** Packed in steel kit. Wt.  $5\frac{1}{4}$  lbs.



### IMPERIAL WIDE-RANGE TUBING TOOL KIT

A handy kit containing the necessary tools for cutting, flaring and bending copper, aluminum and brass tubing quickly and accurately.

Kit includes:

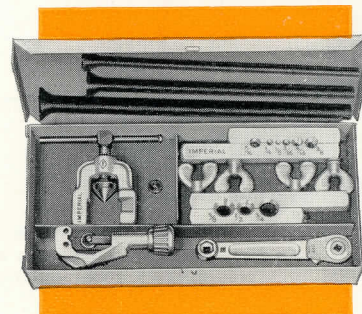
No. 274-F Tube Cutter for tubing from  $\frac{1}{8}$ " to 1" O.D. and No. 32633 extra cutting wheel.

No. 375-FS Wide-Range Flaring Tool for tubing from  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D.

No. 102-F Bending Springs for  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. tubing.

No. 123-C Ratchet Wrench with  $\frac{1}{4}$ " ratchet and  $\frac{3}{16}$ " square opening,  $\frac{1}{4}$ " square opening and  $\frac{1}{2}$ " hex in handle.

**No. 121-F Wide-Range Tubing Tool Kit.** Packed in steel kit. Wt.  $5\frac{3}{4}$  lbs.



### IMPERIAL FLARING AND CUTTING TOOL KIT

(37° Flare)

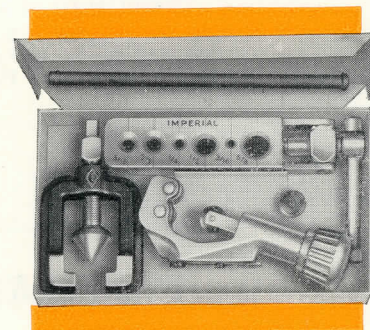
Has the necessary tools for cutting and flaring soft steel, copper and aluminum tubing.

Kit includes:

No. 437-F 37° Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. Tubing.

No. 274-F Tube Cutter for tubing from  $\frac{1}{8}$ " to 1" O.D. and No. 32633 extra cutting wheel.

**No. 122-F Flaring and Cutting Tool Kit.**—Wt.  $2\frac{3}{4}$  lbs.



### BLOCK TIN FLARING AND CUTTING KIT

Contains tools for quickly cutting and flaring block tin pipe.

Kit includes:

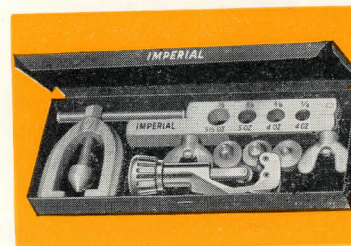
No. MB-86 Block Tin Flaring Tool which gives the proper 90° flare to  $\frac{1}{4}$ " I.D. 4 oz.,  $\frac{3}{8}$ " I.D. 4 oz.,  $\frac{3}{8}$ " I.D. 5 oz. and  $\frac{1}{2}$ " I.D.  $5\frac{1}{2}$  oz. block tin pipe.

No. 274-F Tube Cutter for tubing from  $\frac{1}{8}$ " to 1" O.D.

**No. MB-87 Block Tin Flaring and Cutting Kit.**—Wt. 3 lbs.

**No. MB-86 Block Tin Flaring Tool only.**—Wt.  $1\frac{3}{4}$  lbs.

**No. 274-F Tube Cutter only.**—Wt. 6 oz.







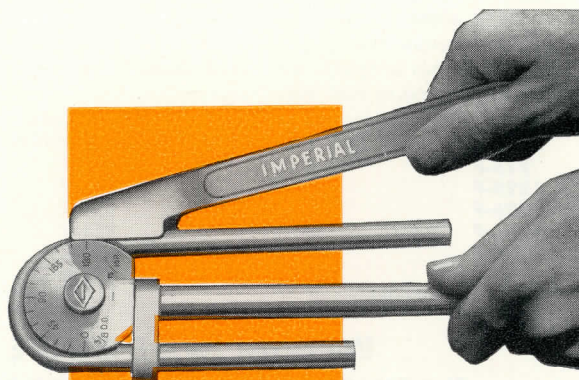
## IMPERIAL BLUE DOT LEVER-TYPE TUBE BENDERS

### Bend Both Hard and Soft Tubing

Now Imperial's widely used lever-type tube benders have exclusive new design features which enable them to bend hard drawn copper, steel (including JIC), aluminum and stainless steel tubing and thin wall conduit, in addition to soft tubing.

These smoothly operating tube benders form neat, accurate bends to a short radius in a minimum of time without marring or deforming the tubing. Open side benders which slip over the tubing at the exact point where bend is desired. Especially handy in hard-to-get-at places where tubing has been partially connected.

Bends can be made to any angle up to 180°. Calibrated. A different size of bender is required for each size of tubing.



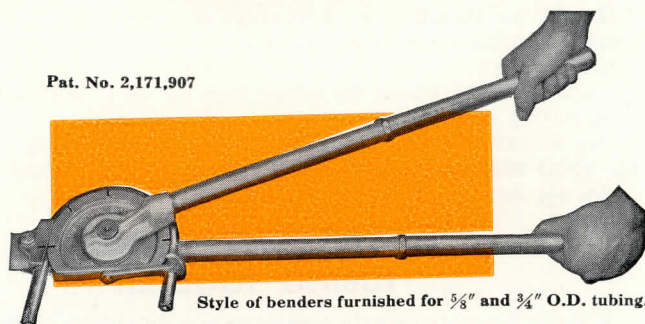
Style of benders furnished for  $\frac{1}{8}$ " to  $\frac{1}{2}$ " O.D. tubing.

### Specify Catalog Number and Size When Ordering

Catalog Number	Outside Diameter of Tubing	Nominal Size	Radius to Center of Tube	Weight Each
364-FH	$\frac{3}{16}$ "*	—	$\frac{7}{16}$ "	9 oz.
364-FH	$\frac{1}{4}$ "	$\frac{1}{8}$ "	$\frac{9}{16}$ "	$\frac{3}{4}$ lb.
364-FH	$\frac{5}{16}$ "	—	$\frac{11}{16}$ "	1 $\frac{1}{4}$ lbs.
364-FH	$\frac{3}{8}$ "	$\frac{1}{4}$ "	$\frac{13}{16}$ "	1 $\frac{3}{4}$ lbs.
364-FH	$\frac{1}{2}$ "	$\frac{3}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ lbs.
364-FH	$\frac{5}{8}$ "	$\frac{1}{2}$ "	2 $\frac{1}{4}$ "	10 lbs.
364-FH	$\frac{3}{4}$ "	$\frac{5}{8}$ "	3"	10 $\frac{1}{2}$ lbs.

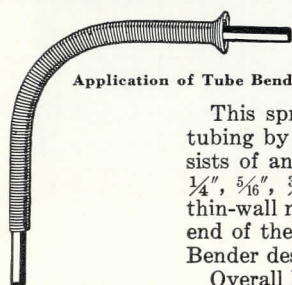
\*Can also be used for  $\frac{1}{8}$ " tubing.

Pat. No. 2,171,907



Style of benders furnished for  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing.

## IMPERIAL TUBE BENDER EXTERNAL SPRING TYPE



Application of Tube Bender

This spring-type Imperial tube bender is an efficient, low-cost tool for bending tubing by hand to any desired shape without collapsing the tube. The bender consists of an especially prepared spring wire coil and is furnished in six sizes to take  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " outside diameter copper, aluminum and other soft, thin-wall metal tubing. Springs have an attractive black protective finish. The belled end of the bender assures ease in removing from tubing after bend has been made. Bender designed to assure against scratching tubing.

Overall length of  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " benders is 10".  $\frac{7}{16}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " benders are 12" overall.

No. 101-F—Set of Six Tube Benders. Weight 2  $\frac{1}{4}$  lbs.

No. 163-F—Set of Four Tube Benders ( $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ "). Weight 1  $\frac{5}{8}$  lbs.

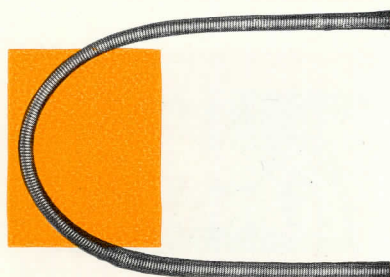
No. 112-F—Set of Three Tube Benders ( $\frac{1}{4}$ ",  $\frac{5}{16}$ " and  $\frac{3}{8}$ "). Weight  $\frac{3}{4}$  lb.

### No. 102-F INDIVIDUAL BENDERS

Size	Weight Each	Size	Weight Each
$\frac{1}{4}$ "	3 oz.	$\frac{7}{16}$ "	6 $\frac{1}{4}$ oz.
$\frac{5}{16}$ "	3 oz.	$\frac{1}{2}$ "	6 $\frac{1}{2}$ oz.
$\frac{3}{8}$ "	4 oz.	$\frac{5}{8}$ "	8 oz.



## IMPERIAL INSIDE BENDING SPRING



This bender offers a simple, reliable method for bending tubing by hand without collapsing or crimping the tube.

The specially prepared spring wire coil is inserted inside the tubing and bends then can be made quickly and easily to any desired shape. Furnished in three sizes, to take  $\frac{3}{8}$ ",  $\frac{1}{2}$ " or  $\frac{5}{8}$ " outside diameter copper, aluminum and other soft, thin-wall metal tubing. Overall length of bender is 6 feet.

### Specify Catalog Number and Size when ordering.

Catalog Number	Size	Weight Each
302-F	$\frac{3}{8}$ "	$\frac{1}{2}$ lb.
302-F	$\frac{1}{2}$ "	1 lb.
302-F	$\frac{5}{8}$ "	1 $\frac{7}{8}$ lbs.





## IMPERIAL FULL RANGE HEAVY-DUTY TUBE BENDING TOOLS

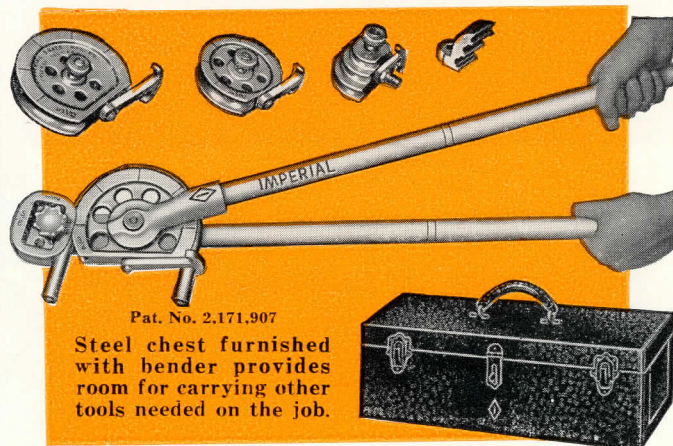
**No. 260-F Bends 7 Sizes of Tubing from  $\frac{1}{4}$ " to  $\frac{7}{8}$ " O.D.**  
**No. 350-F Bends 6 Sizes of Tubing from  $\frac{1}{4}$ " to  $\frac{3}{4}$ " O.D.**  
**No. 360-F Bends 4 Sizes of Tubing from  $\frac{3}{8}$ " to  $\frac{3}{4}$ " O.D.**

Each of these tools is quickly adapted for bending the various sizes within its range, as listed below, by simply changing the forming wheel and block.

For bending soft copper, aluminum or steel tubing. Can also be used for bending hard drawn copper, JIC steel, thin-wall conduit, fully annealed stainless steel and heavy-wall brazed steel tubing (such as Bundy) with use of No. 278-F Clamp.\*

The easiest operating of lever-type benders. Long handles provide good leverage. Handle can be lifted and repositioned during bend so that best leverage is obtained at all times. Tubing is removed easily after bending.

Makes right or left-hand bends up to 180° return bend. Calibrated. Bender can be positioned on tubing at exact point bend is needed. Furnished in steel chest.



**No. 260-F For 7 Sizes  
Shown Below. Wt. 23 lbs.**

O.D. Tube	Nominal Size	Radius to Cen. of Tube
$\frac{1}{4}$ "	$\frac{1}{8}$ "	$\frac{3}{4}$ "
$\frac{5}{16}$ "	—	1"
$\frac{3}{8}$ "	$\frac{1}{4}$ "	$1\frac{1}{4}$ "
$\frac{1}{2}$ "	$\frac{3}{8}$ "	2"
$\frac{5}{8}$ "	$\frac{1}{2}$ "	$2\frac{1}{2}$ "
$\frac{3}{4}$ "	$\frac{5}{8}$ "	3"
$\frac{7}{8}$ "	$\frac{3}{4}$ "	3"

**No. 350-F For 6 Sizes  
Shown Below. Wt. 20 lbs**

O.D. Tube	Nominal Size	Radius to Cen. of Tube
$\frac{1}{4}$ "	$\frac{1}{8}$ "	$\frac{3}{4}$ "
$\frac{5}{16}$ "	—	1"
$\frac{3}{8}$ "	$\frac{1}{4}$ "	$1\frac{1}{4}$ "
$\frac{1}{2}$ "	$\frac{3}{8}$ "	$1\frac{5}{8}$ "
$\frac{5}{8}$ "	$\frac{1}{2}$ "	$2\frac{1}{4}$ "
$\frac{3}{4}$ "	$\frac{5}{8}$ "	3"

**No. 360-F For 4 Sizes  
Shown Below. Wt. 20 lbs.**

O.D. Tube	Nominal Size	Radius to Cen. of Tube
$\frac{3}{8}$ "	$\frac{1}{4}$ "	$1\frac{5}{8}$ "
$\frac{1}{2}$ "	$\frac{3}{8}$ "	$1\frac{5}{8}$ "
$\frac{5}{8}$ "	$\frac{1}{2}$ "	$2\frac{1}{4}$ "
$\frac{3}{4}$ "	$\frac{5}{8}$ "	3"

## IMPERIAL 2-in-1 TUBE BENDERS

### Dual Size Shoe and Forming Wheel

Dual size shoe and forming wheel permit bending two sizes without changing any parts. Does not mar or deform the tubing.

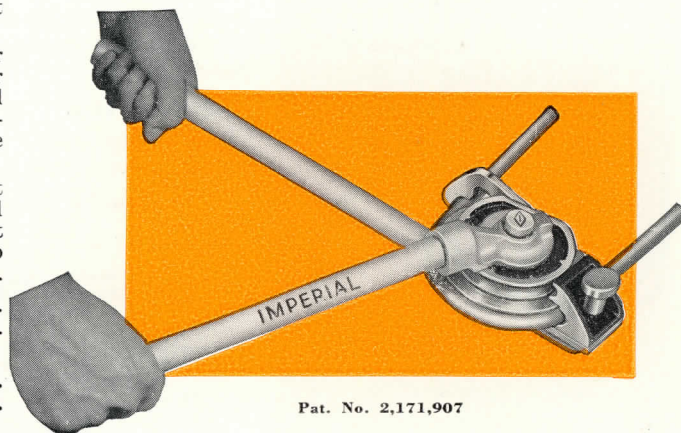
Will bend soft copper, aluminum, steel or other soft, thin-wall metal tubing. Can also be used for bending hard drawn copper, JIC steel, thin-wall conduit, fully annealed stainless steel and heavy-wall brazed steel tubing (such as Bundy) with use of No. 278-F Clamp.\*

Bender can be positioned on tubing at exact point bend is needed. Handle can be lifted and repositioned during course of bend so that best leverage is obtained at all times. Makes bends to any angle up to 180°. Calibrated for degree positions.

**No. 361-FA For  $\frac{5}{8}$ " and  $\frac{7}{8}$ " O.D. tubing. (Nom. sizes— $\frac{1}{2}$ " and  $\frac{3}{4}$ ".) Bending radii:  $\frac{5}{8}$ " O.D. tube— $2\frac{1}{2}$ ";  $\frac{7}{8}$ " O.D.—3". Wt. 10 lbs.**

**No. 362-FA For  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. tubing. (Nom. sizes— $\frac{3}{8}$ " and  $\frac{1}{2}$ ".) Bending radii:  $\frac{1}{2}$ " O.D. tube—2";  $\frac{5}{8}$ " O.D.— $2\frac{1}{2}$ ". Wt.  $9\frac{1}{4}$  lbs.**

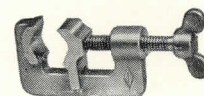
**No. 363-FA For  $\frac{3}{4}$ " and  $\frac{7}{8}$ " O.D. tubing. (Nom. sizes— $\frac{5}{8}$ " and  $\frac{3}{4}$ ".) Bending radii:  $\frac{3}{4}$ " O.D. tube—3";  $\frac{7}{8}$ " O.D.—3". Wt. 11 lbs.**



### \*CLAMP FOR HARD-TO-BEND TUBING

For use when bending hard drawn copper, fully annealed stainless steel, JIC steel or heavy-wall brazed steel tubing with lever-type benders, such as Nos. 364-F, 361-FA, 362-FA, 363-FA, 260-F, 350-F and 360-F. Clamp prevents slipping and crimping of tubing.

**No. 278-F Clamp. For  $\frac{3}{8}$ " to  $\frac{7}{8}$ " O.D. tubing.**





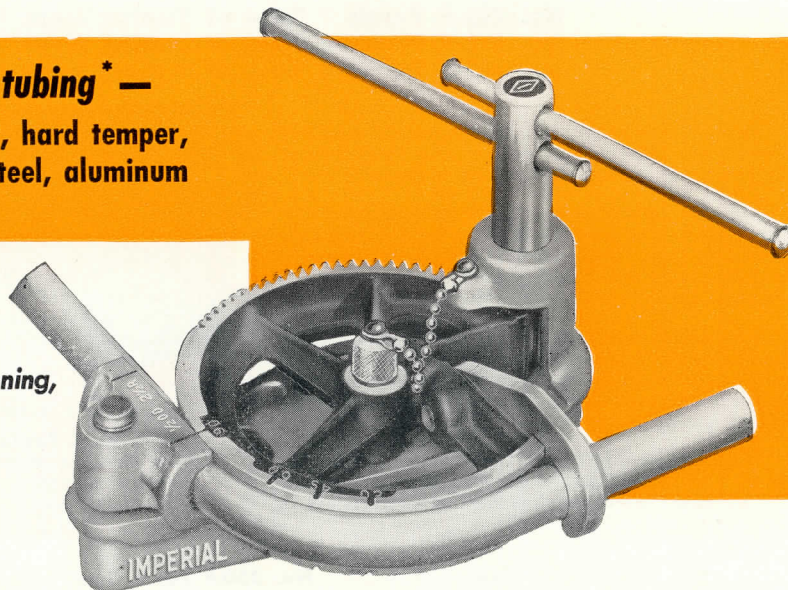


## IMPERIAL UNIVERSAL GEAR-TYPE TUBE BENDERS

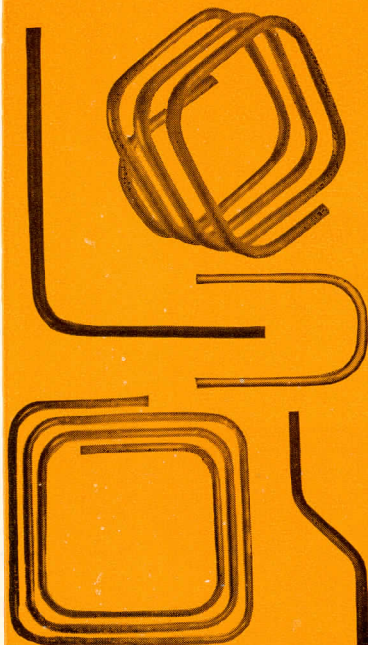
**Will bend any type of tubing\* —**

including hard drawn copper, hard temper, heavy wall steel, stainless steel, aluminum and brass tubing

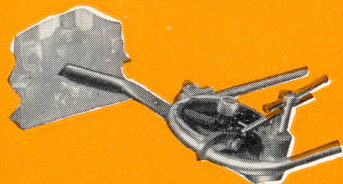
For Refrigeration, Air Conditioning, Radiant Heating, Plumbing, Heating, Hydraulics, Aircraft, Industrial Plants, Instrument Lines, etc.



**FOR ALL BENDING WORK**



CAN BE CLAMPED IN BENCH VISE or, with Extension Handle No. 271-F, can be clamped in pipe vise as shown in illustration.



Sturdy, compact, economically priced benders for use with any type of tubing\*—hard or soft temper. So rugged that they will bend hard temper, heavy steel tube or iron pipe. They provide a simple, time-saving method of making good bends on the job or in the shop.

### MAKE SMOOTH, EVEN BENDS—EXTREMELY VERSATILE

A bending action similar to the original drawing of tubing, combined with close fit, assures that tubing will not kink or flatten. Benders can be positioned on tube at any point desired. Bends can be made with one end of tube connected as well as when both ends are free. Will make right or left hand bends, return bends, offset bends, right angle bends.

### EASY TO OPERATE

High gear ratio makes it easier to bend even larger sizes of tubing. Benders are designed so that they can be held by hand, clamped in a vise or bolted to a bench. Can be used with pipe vise with extension handle No. 271-F.

### STRONG, LIGHT WEIGHT

Made of high tensile strength materials to assure durability and satisfactory service—yet light in weight to provide portability.

### Specify Outside Diameter of Tube When Ordering

A separate bender is used for each size of tubing

Catalog No.	Outside Diameter of Tube	Nominal Tube Size	Bending Radius to Center of Tube	Minimum Return or Coil Bend from Center to Center of Tubing	Weight Each in Lbs.	Price Each
270-F	3/8"	1/4"	1 3/4"	4 1/2"	3	
270-F	1/2"	3/8"	2 1/2"	6"	4 3/4	
270-F	5/8"	1/2"	3"	7 1/2"	8 1/2	
270-F	3/4"	5/8"	4"	9 1/2"	15	
270-F	7/8"	3/4"	4"	9 1/2"	14 3/4	
270-F	1"		4"	9 1/2"	14 3/4	
270-F	1 1/8"	1"	4"	9 1/2"	14 1/4	

### No. 271-F Extension Handle.

Fits all No. 270-F Benders. Wt. 1 3/4 lbs.

For use when clamping bender in pipe vise.



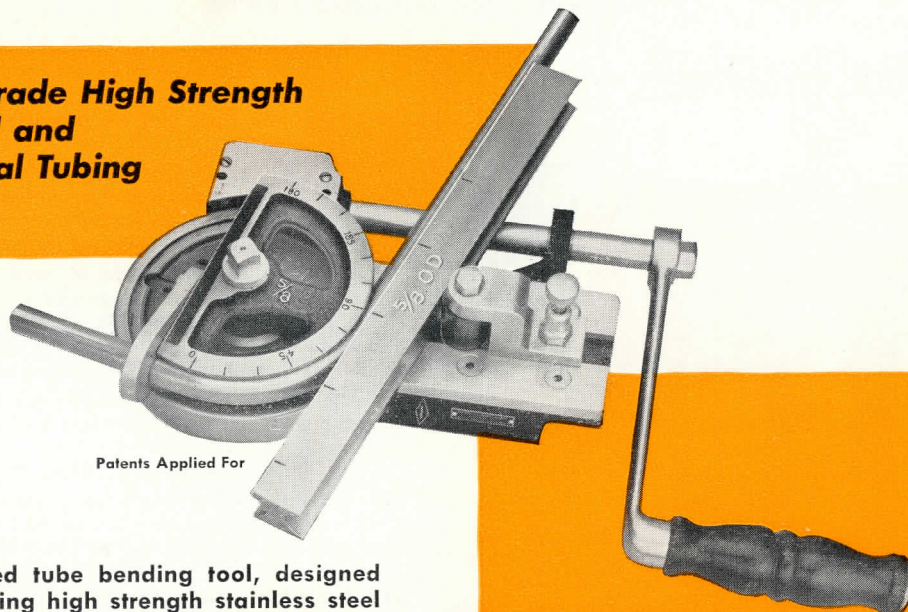
\*Type L tubing in sizes of 1" and 1 1/8" should be stress relieved before bending. Heat to temperature of approximately 800° F. Type M tubing cannot be bent with hand operated tube benders.





## IMPERIAL TUBE BENDING TOOL

**For Aircraft Grade High Strength Stainless Steel and All Other Metal Tubing**



Patents Applied For

A manually operated tube bending tool, designed specifically for bending high strength stainless steel tubing (MIL-T-6845), such as used in aircraft hydraulic systems. Also for bending steel, copper, titanium, aluminum and other metal tubing—hard or soft temper. Tool is portable and can be utilized for field maintenance, at major overhaul stations, or for experimental work. Bends 6 sizes of tubing— $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ", and  $\frac{3}{4}$ " outside diameter.

### DOES NOT DEFORM TUBING

Tubing will not kink, wrinkle or flatten because of the smooth, worm gear drive which causes an even torque to be exerted throughout the course of the bend, thereby eliminating sudden strains or backlash which might result in deformation of tubing. Slippage is avoided through the use of a follow bar which reduces drag on tubing. Cross sectional diameter of tubing at any point on bend and wall thickness in bend section are not reduced appreciably. Precision workmanship throughout construction of bender, combined with method of operation, prevents formation of scratches, diemarks and other surface imperfections on tubing.

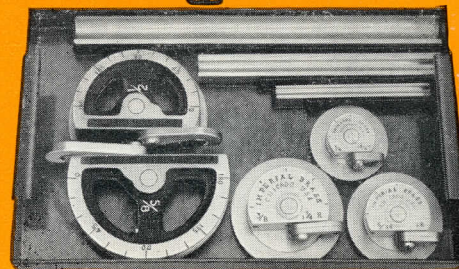
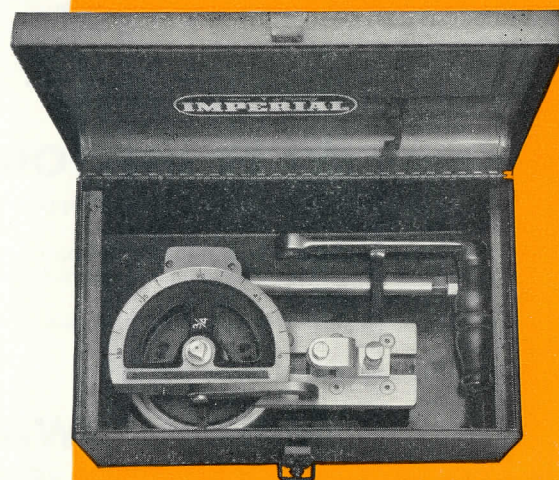
### DESIGNED FOR CONVENIENT MANUAL OPERATION

Worm gear drive multiplies effort applied and reduces torque required for bending. Tool is quickly adapted to the various sizes by merely changing forming wheel and follow bar. It is portable and can be clamped in a vise or mounted on a tripod.

### IDEAL FOR ALL BENDING WORK

Tool will make bends up to  $180^\circ$  in one operation—without resetting or adjusting the tubing. Forming wheels are calibrated to indicate degree of bend. Bender can be positioned on tube at any point desired. Makes return bends, offset bends, right angle bends, etc. Makes bends to the practical minimum radii for high strength stainless steel tubing, as recommended by major aircraft companies.

**No. 600-F IMPERIAL TUBE BENDING TOOL** for  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing. Furnished in steel kit. Wt. complete 35 lbs.



Tool furnished in steel carrying case.  
Size:  $14\frac{3}{16}$ " x  $8\frac{1}{16}$ " x  $6\frac{3}{16}$ ".

### RADII OF BENDS

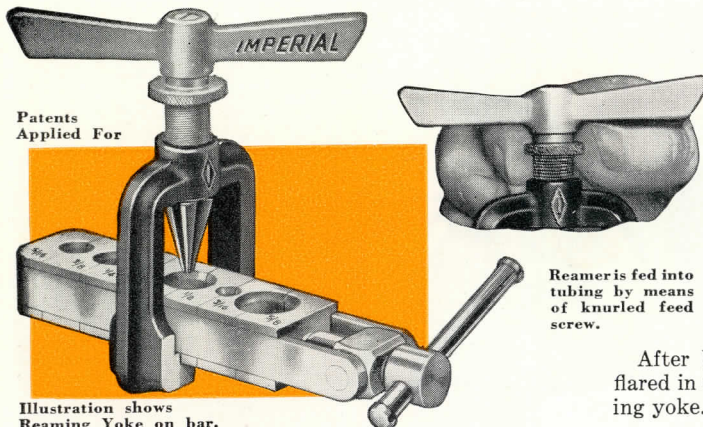
O.D. of Tube	Radius to Center of Tube	O.D. of Tube	Radius to Center of Tube
$\frac{1}{4}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	2"
$\frac{5}{16}$ "	1"	$\frac{5}{8}$ "	$2\frac{1}{2}$ "
$\frac{3}{8}$ "	$1\frac{1}{4}$ "	$\frac{3}{4}$ "	3"





## IMPERIAL REAMING AND DEBURRING TOOLS

*With Precision Feed Control*



Patents  
Applied For

Illustration shows  
Reaming Yoke on bar.  
Order bar separately.

Reamer is fed into  
tubing by means  
of knurled feed  
screw.

For removing inner burrs on all kinds of tubing, including steel and stainless steel. There is no finer tool for preparing tubing for perfect flares.

Especially adapted for hydraulic, aviation and other exacting tubing connection work. Designed to prepare tubing in conformity with J.I.C. standards for hydraulic installations.

Reamer made of hardened tool steel with tapered cutters ground sharp to precise cutting angles. Knurled-head feed screw has fine threads for sensitive control of feeding action. Forged steel yoke is self-centering.

After burr is removed, tubing can be repositioned and flared in same bar by substituting flaring yoke for the reaming yoke.

### Reaming Yokes Only

**No. 438-F Reaming Yoke only.** (Does not include bar.) For  $\frac{1}{4}$ " to  $\frac{5}{8}$ " O.D. tubing. Can be used with flaring bars furnished with Imperial Flaring Tools No. 437-F, No. 500-F, No. 300-F or No. 355-F. Wt.  $\frac{5}{8}$  lb.

**No. 538-F Reaming Yoke only.** (Does not include bar.) For  $\frac{3}{4}$ " to  $1\frac{1}{4}$ " O.D. tubing. For use with bar furnished with Imperial No. 537-F Flaring Tool. Wt.  $1\frac{1}{4}$  lbs.

**No. 401-F Reaming Yoke only.** (Does not include bar.) For  $\frac{1}{4}$ " to  $\frac{5}{8}$ " O.D. tubing. For use with No. 400-F Flaring Tool Bar. (No. 61826). Wt. 9 oz.

- Bars Only**
- No. 61984 Deburring and Flaring Bar only** (as furnished with No. 437-F Flaring Tool). For use with No. 438-F Reamer listed at right. Wt. 15 oz.
- No. 61960 Deburring and Flaring Bar only** (as furnished with No. 537-F Flaring Tool). For use with No. 538-F Reamer listed at right. Wt.  $3\frac{1}{4}$  lbs.
- No. 61826 Deburring and Flaring Bar only.** For use with No. 401-F Reamer listed at right. For  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " O.D. Tubing. Wt. 1 lb., 6 oz.

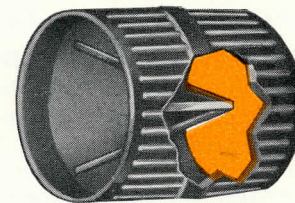
## IMPERIAL INNER AND OUTER REAMER

For reaming both inside and outside edges of copper, brass or aluminum tubing—sizes  $\frac{3}{16}$ " to  $1\frac{1}{2}$ " O.D.

Tubing is introduced from one end of tool for inside reaming, and from the other end for outside reaming. Tool cuts in either direction and is self-centering. Body is knurled for easy handling.

Tool has 3 hardened, hollow ground, tool steel cutters which will give exceptionally long service.

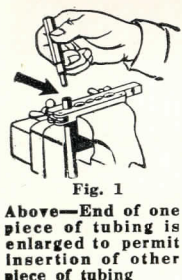
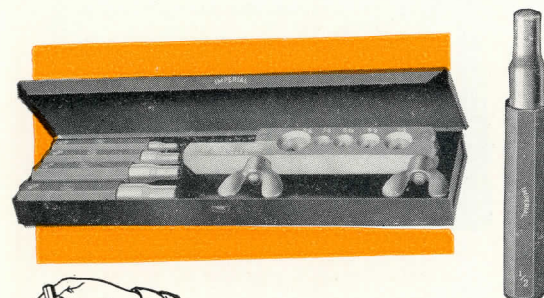
**No. 208F—Inner and Outer Reamer.** Wt.  $\frac{5}{8}$  lb.



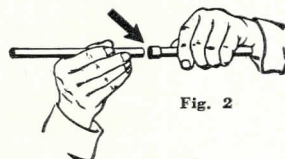
Pat. No. 2,242,821

## IMPERIAL SWAGING TOOL KIT

*For Making Joints Without Fittings*



Below—Two pieces of tubing ready for assembly. The end of one piece has been swaged.



Emergency connections are quickly made with this handy swaging tool kit which contains a flaring bar and four different sizes of swaging tools.

Two lengths of tubing of the same size are easily joined by enlarging the inside diameter of one of the pieces of tubing (Fig. 1) to permit the insertion of the other piece of tubing. Fig. 2 shows the two pieces of tubing, one of which has been swaged. The pieces are then assembled and soldered together making a secure joint.

**No. 195-S—Kit includes Flaring Bar and 4 Swaging Tools for  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. Tubing.** Packed in steel box. Approximate weight 2 lbs.

**No. 193-S—4 Swaging Tools only ( $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ ".)** Approx. wt. 1 lb.

**No. 30231—Flaring Bar only.** Approx. wt. 1 lb.

**No. 93-S—Tool for  $\frac{3}{16}$ " Tube.** Wt. 3 oz.

**No. 93-S—Tool for  $\frac{1}{4}$ " Tube.** Wt. 3 oz.

**No. 93-S—Tool for  $\frac{5}{16}$ " Tube.** Wt.  $\frac{1}{4}$  lb.

**No. 93-S—Tool for  $\frac{3}{8}$ " Tube.** Wt.  $\frac{1}{4}$  lb.

**No. 93-S—Tool for  $\frac{1}{2}$ " Tube.** Wt.  $\frac{1}{2}$  lb.

**No. 93-S—Tool for  $\frac{5}{8}$ " Tube.** Wt.  $\frac{1}{2}$  lb.

**No. 93-S—Tool for  $\frac{3}{4}$ " Tube.** Wt.  $\frac{3}{4}$  lb.





# IMPERIAL TUBING TOOLS

THE IMPERIAL BRASS MFG. CO.

CHICAGO 7, ILLINOIS

REFACING • PINCH-OFF  
TEST PLUGS • WRENCH

## IMPERIAL REFACING TOOL

With Precision Feed 45° and 37° Types

An improved tool for refacing damaged male flare seats on fittings and valves. Makes nicked and marred seats as good as new.

Has precision feed control for cutter so that flare seat is restored to original accuracy and smoothness without gouging or chattering. Cutter is replaceable.

**No. 345-F—45° Refacing Tool (illustrated) complete with cutter and adapters for 1/4", 5/16", 3/8", 1/2" and 5/8" fittings. Furnished in steel kit. Wt. 2 lbs.**

**No. 337-F—37° Refacing Tool complete with 2 cutters and adapters for 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" fittings. Furnished in steel kit. Wt. 2 1/8 lbs.**

### Extra Parts

**No. 346-F Adapter only for No. 345-F. Specify size. Wt. 1 3/8 oz.**

**No. 347-F Cutter Assembly (without cutter) for No. 345-F. Wt. 11 oz.**

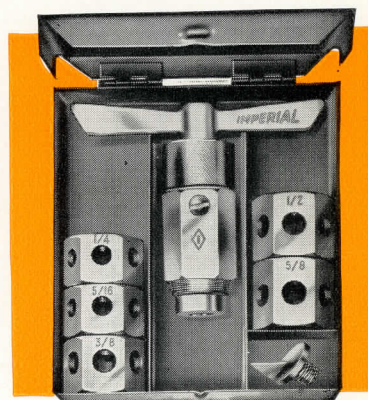
**No. 348-F Cutter Blade for No. 345-F. Wt. 1/2 oz.**

**No. 338-F Adapter only for No. 337-F. Specify size. Wt. 1 3/8 oz.**

**No. 339-F Cutter Assembly (without cutter) for No. 337-F. Wt. 11 oz.**

**No. 340-F Cutter Blade for No. 337-F, for 3/16", 1/4", 5/16" fittings. Wt. 1/2 oz.**

**No. 341-F Cutter Blade for No. 337-F, for 3/8", 1/2", 5/8" fittings. Wt. 1/2 oz.**



## IMPERIAL PINCH-OFF TOOLS

With Re-Rounding Holes

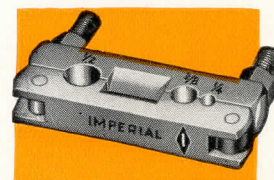
For temporarily closing copper, brass, aluminum and soft steel tubing so that no gas or liquid will pass this sealed part of the tubing. This makes it possible to disconnect a line while making repairs or installations without losing any of the liquid or gas.

These tools will also open up the tubing and round it back into shape after the job is completed.

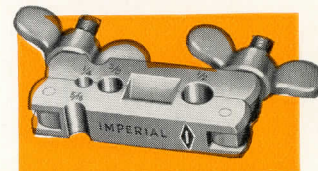
The No. 105-F Pinch-Off Tool is furnished with hex nuts and the No. 105-FF is furnished with wing nuts.

**No. 105-F—Pinch-Off Tool for 1/4", 3/8" and 1/2" O.D. Tubing. Wt. 3/4 lb.**

**No. 105-FF—Pinch-Off Tool for 1/4", 5/16", 3/8" and 1/2" O.D. Tubing. Wt. 3/4 lb.**



No. 105-F



No. 105-FF

## IMPERIAL TUBING TEST PLUGS

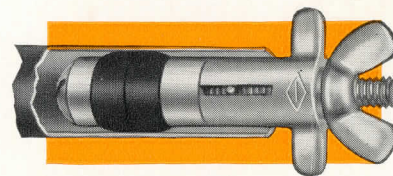
For Temporarily Shutting Off Tubing

For use in instrumentation, radiant heat, refrigeration, LP-Gas—anywhere that it is desirable to shut-off the end of a tube temporarily without pinching it off or installing a valve.

Used, for example, where it is desirable to test tubing installations before putting into service or when "trouble shooting" for leaks. Plug is inserted in end of tube and wing nut is tightened. This expands synthetic rubber portion of plug and seals tube. Will hold pressures up to 100 lbs.

Test plug can be used on liquid or gas lines, except those which contain materials that would deteriorate synthetic rubber.

Cat. No.	O.D. of Tube	Nominal Size	Cat. No.	O.D. of Tube	Nominal Size
140-F	1/4"	1/8"	140-F	5/8"	1/2"
140-F	3/8"	1/4"	140-F	3/4"	3/8"
140-F	1/2"	3/8"	140-F	7/8"	3/4"
			140-F	1 1/8"	1"



## IMPERIAL RATCHET WRENCH

A quality ratchet wrench made of forged steel. The same wrench that is furnished in No. 121-F Tool Kit.

Ratchet has 1/4" square opening and raised face. Handle of wrench has 3/16" square opening, 1/4" square opening and 1/2" hex.

**No. 123-C—Ratchet Wrench. .... Wt. 6 oz.**







*...this Seal of Quality*

... ATTACHED TO IMPERIAL TOOLS IS YOUR  
ASSURANCE OF OUTSTANDING PERFORMANCE



August 16, 1955

Supersedes Price Sheet

Dated January 31, 1955

# NUMERICAL INDEX AND NET PRICES

## Applying to IMPERIAL TUBE WORKING TOOLS CATALOG No. 3011-B

Prices are subject to change without notice. Prices do not include any State Taxes.

Catalog No.	Page No.	Price Each	Catalog No.	Page No.	Price Each	Catalog No.	Page No.	Price Each
32 outfit	Discontinued		140-F 1/4	19	\$ .75†	276-FS	7	\$ 7.85
33 outfit	Discontinued		3/8	19	1.50†	278-F	15	1.05
34 outfit	Discontinued		1/2	19	1.70†	278-FS	7	1.60
35-C		\$11.95	5/8	19	1.85†	285-F	Discontinued	
37-C		9.25	3/4	19	2.00†	291-G		3.75
47-A		1.65	7/8	19	2.35†	295-FS	9	6.25
MB-86	13	6.75†	1-1/8	19	2.95†	299-G		19.95
MB-87	13	10.95†	141-A		2.55	300-F	7	6.75
93-F	5	4.75	142-A		2.95	302-F 3/8	14	.90†
93-FB	18	9.40	143-A		4.85	302-F 1/2	14	1.30†
93-S 3/16	18	.40†	161-C		.25ft.†	302-F 5/8	14	1.80†
93-S 1/4	18	.50†	163-F	14	1.85†	312-F	2	4.75
93-S 5/16	18	.70†	184-F	3	18.50	337-F	19	20.50
93-S 3/8	18	.65†	185-F	3	36.75	338-F	19	1.35
93-S 1/2	18	.90†	193-F	5	4.75	339-F	19	13.15
93-S 5/8	18	1.25†	193-FS	5	4.95	340-F	19	2.65
93-S 3/4	18	1.35†	193-S	18	3.10†	341-F	19	2.65
95-F	5	5.60	195-F	5	5.60	345-F	19	17.10
95-FS	5	5.95	195-FB	8	26.25	346-F	19	1.40
97-F	3	.40	195-FS	5	5.95	347-F	19	11.00
98-F	Discontinued. Order 345-F		195-S	18	7.75†	348-F	19	2.65
99-F	Discontinued		203-FS	6	9.40	350-F	15	62.75
100-F	Discontinued		206-F	2	11.75	360-F	15	51.95
101-F	14	2.55†	208-F	18	2.50	361-FA	15	31.25
102-F 1/4	14	.30†	225-F	13	9.35	362-FA	15	25.75
102-F 5/16	14	.35†	226-F	12	10.20	363-FA	15	35.50
102-F 3/8	14	.40†	227-F	3	1.85	364-FH 3/16	14	6.85
102-F 7/16	14	.55†	250-F	Discontinued,		364-FH 1/4	14	6.85
102-F 1/2	14	.60†		Order 251-F		364-FH 5/16	14	7.95
102-F 5/8	14	.65†	251-F	9	16.75	364-FH 3/8	14	7.80
103-FS	6	9.40	255-F	12	20.95	364-FH 1/2	14	13.15
105-F	19	2.65	260-F	15	72.50	364-FH 5/8	14	25.00
105-FF	19	3.35	261-G		1.50	364-FH 3/4	14	33.50
112-F	14	1.05†	270-F 3/8	16	13.40	370-C		1.60
120-F	13	13.30	270-F 1/2	16	18.60	375-FS	6	8.70
121-F	13	16.35	270-F 5/8	16	22.30	384-F	3	16.50
122-F	13	14.10	270-F 3/4	16	28.10	390-F		124.65
123-C	19	1.75	270-F 7/8	16	29.30	400-F	11	26.75
123-F	13	11.35	270-F 1	16	30.70	401-F	18	9.50
124-F	13	14.55	270-F 1-1/8	16	30.70	402-F	11	36.25
127-F	Discontinued. Order 227-F		271-F	16	3.25	437-F	10	9.50
140-C		.30†	274-F	2,13	3.95†	438-F	18	5.95
			275-FS	7	13.50	500-F	4	9.95

† No price change on this item.



Catalog No.	Page No.	Price Each	Catalog No.	Page No.	Price Each	Catalog No.	Page No.	Price Each
507-F	12	\$ 12.50	37369	5	\$ 2.35	60233	3	\$ .25
537-F	10	41.75	37677	9	2.75	60515	6	4.95
538-F	18	19.75	37688	Order 61293		60769	3	.50
600-F	17	163.00	38379	5	2.20	61293	9	4.70
637-F	10	157.00	38381	18	3.60	61637	4	6.85
1225-F	13	9.35	38384	18	1.05	61639	4	1.60
1226-F	13	10.20	38385	18	1.05	61826	18	9.20
25384	5	.45	38386	18	.75	61851	4	4.50
26883	3	.10†	38387	18	.75	61893	7	4.45
28357	8	.40	38388	18	.75	61936	3	.17
28359	8	.25†	38584	5,6,7,18		61948	10	22.55
28502		.40†	38586	8	.40	61960	10,18	20.95
28776		.06†	38588	6	.28	61982	10	5.75
30009	5	.10†	38593	7	3.10	61984	10,18	4.50
30077	5	3.15	38600	7	1.00	63587	9	3.30 pr.
30231	5,18	4.40	38766	6,7	3.15	63633	12	4.15 pr.
31296	3	.07†	38767	6,7	3.15	64201		1.05
32532	5,7	.45	38769	6	3.25	64250	8	7.85
32633	3	.40†	38903	6	3.50	64252	8	1.85
32638	6,18	2.65	38904	6	1.45	64253	8	12.60
32640	6,18	.45	38905	6	4.95	64256	8	.85
33045	3	.85	39022		.65	64257	8	.85
33046	3	.10	39023		1.00	64258	8	1.15
33465	5	1.90	39026		.90	64259	8	1.25
36273	5	2.30	39029		.65	64260	8	1.60
36277	5	3.15	39035		.20	64261	8	1.85
36279	5	4.40	39859	7	2.35	64742	12	9.40
36849	5,6,18	.40	60225	3	.70	64743	12	4.30
36850	5,6,18	.40	60232	3	.17	64745	12	2.55
36926		.40†						

† No price change on this item.

THE IMPERIAL BRASS MANUFACTURING CO.  
1200 W. Harrison St., Chicago 7, Ill., U. S. A.